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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,742	09/19/2003	Alan G. Wood	2269-6095US (03-0593.00/U)	6057
24247	7590	11/15/2005	EXAMINER	
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			GHYKA, ALEXANDER G	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/666,742

Applicant(s)

WOOD ET AL.

Examiner

Alexander G. Ghyska

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 17-34 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

ALEXANDER GHYKA
PRIMARY EXAMINER

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Aly Ghyska

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Applicants' response of 8/31/2005 has been entered and considered. Claims 17-34 are under consideration. Applicants' arguments have been considered, but they are not persuasive for the reasons as discussed below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Leedy et al (US 5,869,354) for the reasons as discussed in the previous Office action.

The afore mentioned claims generally require a method for thinning a semiconductor substrate comprising forming a support structure on an active surface of the semiconductor substrate, removing material from a back side of the semiconductor substrate to form a thinned semiconductor substrate; and transporting the thinned substrate for further processing.

Leedy et al disclose a method of making a dielectrically isolated integrated circuit. Leedy et al disclose the step of attaching an annular support ring to an edge portion of a semiconductor substrate on a principal side, and thinning the backside of the semiconductor substrate, as required by present claims 17-19. See column 7, line

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50 to column 8, line 15, column 44, lines 35-50 and column 45, lines 1-5. Leedy et al also discloses the use of a package as required by present Claim 20. See the Abstract and Figures 16A –16B. As Leedy et al disclose multiple chip modules, in other words the need for further processing the thinned substrate, and therefore the limitation “transporting the thinned semiconductor substrate for further processing” is met. See Figures 32A-C for example. Therefore, Claims 17-20 are anticipated by the Leedy reference.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 21-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leedy et al (US 5,869,354) in view of Grigg (US 6,562,661) for the reasons as discussed in the previous Office action.

The afore mentioned Claims generally require that the support structure comprises forming a layer comprising unconsolidated material over at least an outer peripheral portion of the active surface; and at least partially consolidating the unconsolidated material within at least outer peripheral regions of the layer.

Leedy et al is relied upon as discussed above.

However, Leedy et al does not disclose forming a layer comprising unconsolidated material over at least an outer peripheral portion of the active surface; and at least partially consolidating the unconsolidated material within at least outer peripheral regions of the layer.

Grigg disclose stiffeners for connective structures that are configured to be secured to a semiconductor device component such as a semiconductor die or substrate by a tape automated bonding process. See the Abstract. Grigg et al disclose forming a layer comprising unconsolidated material over at least an outer peripheral portion of the active surface; and at least partially consolidating the unconsolidated material within at least outer peripheral regions of the layer, as required in present Claims 21-23. See Figure 6, column 7, lines 50-60 and column 16, lines 1-15. Moreover, Grigg et al disclose energy beams as required in Claims 24-25. Furthermore, Grigg et al disclose stereolithographically forming the structure as required by present Claims 26-31. See column 12, line 55 to column 13, line 60.

It would have been obvious for one of ordinary skill in the art, at the time of the invention, to bond the interconnect circuit membrane as disclosed by Leedy et al using the stiffeners as disclosed by Grigg, for their known benefit in fabricating connective structures and to arrive at the presently claimed invention. The use of a known bonding process to fabricate interconnect circuit membranes which are known in the prior art, is *prima facie* obvious. Therefore, the presently claimed limitations are obvious in view of the cited references.

Response to Applicants' Arguments

Applicants' argue that the description of Leedy is limited to etching the back side 14 of a silicon substrate 10 to remove material therefrom, then after etching, forming a retaining frame (or ring) 18 on the back side. The Examiner maintains that Leedy disclose the step of attaching an annular support ring to an edge portion of a semiconductor substrate on a principal side. See for example Figure 1f, and column 7, lines 48-50, and column 8, lines 48-50 which clearly show that the retaining frame or ring is on both sides of the wafer. Therefore, The Examiner maintains Claims 17-20 are anticipated by the Leedy reference. With respect to the Grigg reference, Applicants argue the deficiencies of the Leedy reference. The Examiner maintains that Leedy discloses a support on the active surface as discussed above. Moreover, the Examiner maintains that it would have been obvious for one of ordinary skill in the art, at the time of the invention, to bond the interconnect circuit membrane as disclosed by Leedy et al using the stiffeners as disclosed by Grigg, for their known benefit in fabricating

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connective structures and to arrive at the presently claimed invention. The use of a known bonding process to fabricate interconnect circuit membranes which are known in the prior art, is *prima facie* obvious. Therefore, the rejections of record are maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander G. Ghyka whose telephone number is (571) 272-1669. The examiner can normally be reached on Monday through Thursday during general business hours.

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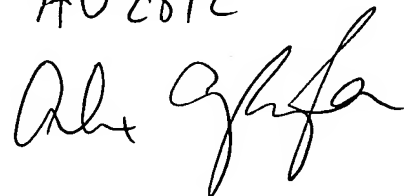
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AGG
November 11, 2005

ALEXANDER GHYKA
PRIMARY EXAMINER

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A handwritten signature in cursive script, appearing to read 'Alex Ghyska', written in black ink.